

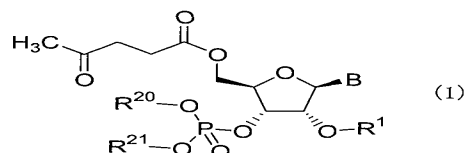
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A ribonucleic acid compound represented by ~~the following~~ general formula (1):

[~~Chemical Formula 19~~]



(wherein B represents adenine, guanine, cytosine or uracil or a modified form thereof; R¹ represents a protecting group which can be removed at 90% or more at a temperature in the range from 0°C to 60°C under acidic conditions at a pH value from 2 to 4 within 24 hours; R²⁰ represents H or an alkyl which may be substituted; and R²¹ represents an aryl which may be substituted or a monocyclic or bicyclic heterocyclic which may be substituted), or a salt thereof.

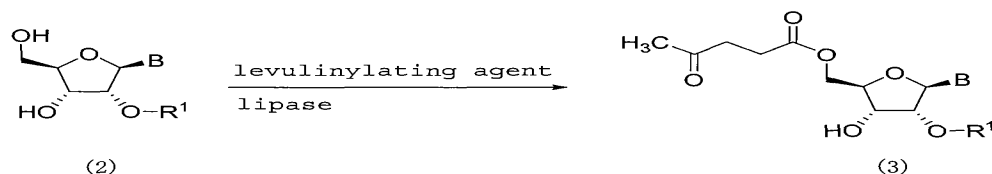
Claim 2 (Original): The ribonucleic acid compound or a salt thereof according to claim 1, wherein R¹ is 2-tetrahydrofuranyl or 1,3-dioxolan-2-yl.

Claim 3 (Original): The ribonucleic acid compound or a salt thereof according to claim 1 or 2, wherein R²⁰ is H, 2-cyanoethyl or 2,2,2-trichloroethyl, and R²¹ is 2-chlorophenyl or 2-chloro-4-tert-butylphenyl.

Claim 4 (Currently Amended): A method for producing a ribonucleic acid compound represented by the following general formula (3), comprising regioselectively levulinylating the hydroxyl at the 5'-position of a ribonucleic acid compound represented by general formula (2) by allowing a

levulinylating agent and a lipase to act on a ~~ribonucleic acid~~ the compound represented by ~~the~~ following general formula (2):

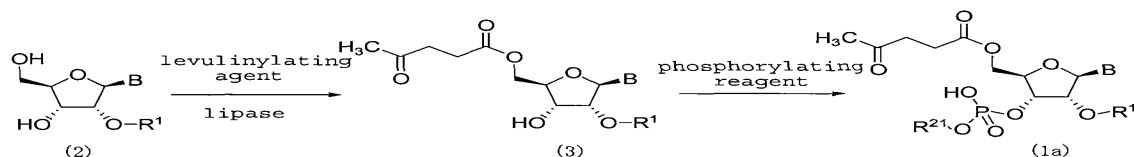
[Chemical Formula 20]



(wherein B represents adenine, guanine, cytosine or uracil or a modified form thereof; and R¹ represents a protecting group which can be removed at 90% or more at a temperature in the range from 0°C to 60°C under acidic conditions at a pH value from 2 to 4 within 24 hours).

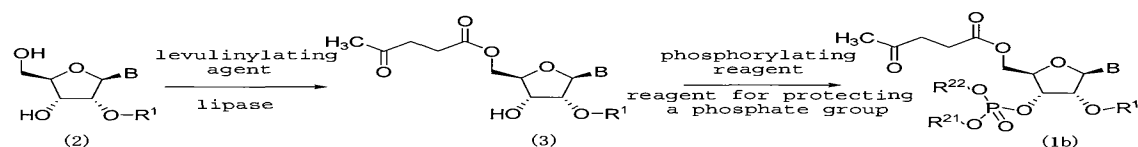
Claim 5 (Currently Amended): A method for producing a ribonucleic acid compound (1) ~~in which R²⁰ is H~~ represented by ~~the following~~ general formula (1a), by comprising allowing a phosphorylating reagent to act on a ribonucleic acid compound represented by ~~the following~~ general formula (3) produced by a production method including the step of regioselectively levulinylating the hydroxyl at the 5'-position of a ribonucleic acid compound represented by formula (2) by allowing a levulinylating agent and a lipase to act on a the ribonucleic acid compound represented by ~~the following~~ general formula (2):

[Chemical Formula 21]



(wherein B represents adenine, guanine, cytosine or uracil or a modified form thereof; R¹ represents a protecting group which can be removed at 90% or more at a temperature in the range from 0°C to 60°C under acidic conditions at a pH value from 2 to 4 within 24 hours; and R²¹ represents an aryl which may be substituted or a monocyclic or bicyclic heterocyclic which may be substituted).

[Chemical Formula 22]



Claim 9 (Original): The method for producing a ribonucleic acid compound according to any one of claims 5 to 8, wherein the phosphorylating reagent is 2-chlorophenyl phosphoroditriazolide, 2-

chlorophenyl-O,O-bis(1-benzotriazolyl)phosphate
 phosphoroditriazolide.

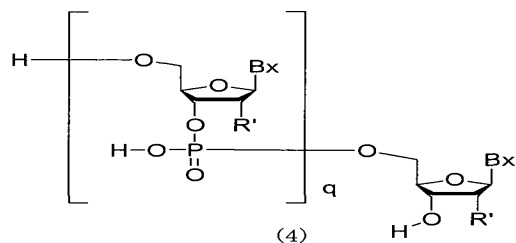
or

2-chloro-4-tert-butylphenyl

Claim 10 (Original): The method for producing a ribonucleic acid compound according to any one of claims 6 to 9, wherein the reagent for protecting a phosphate group is 3-hydroxypropionitril or 2,2,2-trichloroethanol.

Claim 11 (Currently Amended): A liquid-phase synthesis method for an oligonucleotide compound represented by the following general formula (4):

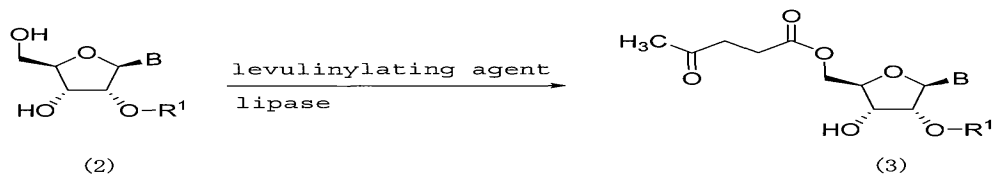
{Chemical Formula 23}



(wherein each Bx independently represents adenine, guanine, cytosine, uracil or thymine or a modified form thereof; q represents an integer in the range from 1 to 100; at least one of R' is hydroxyl and the others represent independently H or hydroxyl), comprising the following steps (a) to (f):

(a) producing a ribonucleic acid compound represented by the following general formula (3) by regioselectively levulinylating the hydroxyl at the 5'-position of a ribonucleic acid compound represented by general formula (2) by allowing a levulinylating agent and a lipase to act on a ribonucleic acid the compound represented by the following general formula (2):

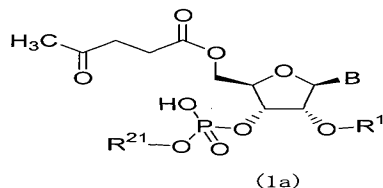
{Chemical Formula 24}



(wherein B represents adenine, guanine, cytosine or uracil or a modified form thereof; and R¹ represents a protecting group which can be removed at 90% or more at a temperature in the range from 0°C to 60°C under acidic conditions at a pH value from 2 to 4 within 24 hours);

(b) producing a ribonucleic acid compound represented by ~~the following~~ general formula (1a) by phosphorylating the hydroxyl at the 3'-position of the compound represented by general formula (3) by allowing a phosphorylating reagent to act on ~~a ribonucleic acid~~ the compound represented by general formula (3) produced by the step (a):

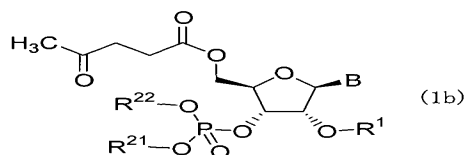
[Chemical Formula 25]



(wherein B and R¹ are ~~the same~~ as defined above; and R²¹ represents aryl which may be substituted or a monocyclic or bicyclic heterocyclic group which may be substituted);

(c) producing, separately from ~~the~~ step (b), a ribonucleic acid compound represented by ~~the following~~ general formula (1b) by allowing a phosphorylating reagent and a reagent for protecting a phosphate group to act on ~~a ribonucleic acid~~ the compound represented by general formula (3) produced by the step (a):

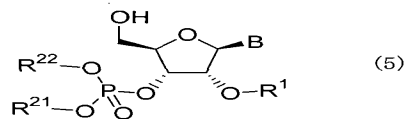
[Chemical Formula 26]



(wherein B, R¹, and R²¹ are ~~the same~~ as defined above; and R²² represents alkyl which may be substituted);

(d) producing a ribonucleic acid compound represented by ~~the following~~ general formula (5) by deprotecting levulinyl of the ~~ribonucleic acid compound~~ represented by general formula (1b) produced by ~~the~~ step (c):

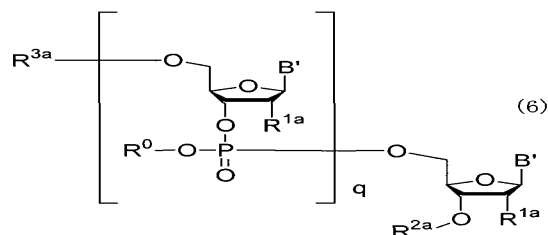
[Chemical Formula 27]



(wherein B, R¹, R²¹ and R²² are ~~the same~~ as defined above);

(e) producing an oligonucleotide compound represented by ~~the following~~ general formula (6) by stepwise oligomerization using as a monomer component, at least one of the ribonucleic acid compounds represented by general formulas (1a) and (5) produced by ~~the~~ steps (b) and (d), respectively:

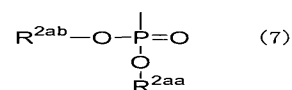
[Chemical Formula 28]



(wherein each B' independently represents adenine, guanine, cytosine, uracil or thymine or a modified form thereof; each R⁰ independently represents H, aryl which may be substituted or a

monocyclic or bicyclic heterocyclic group which may be substituted; R^{3a} represents H, levulinyl or 4,4'-dimethoxytrityl; q is ~~the same~~ as defined above; at least one of R^{1a} is hydroxyl substituted with a protecting group which can be removed at 90% or more at a temperature in the range from 0°C to 60°C under acidic conditions at a pH value from 2 to 4 within 24 hours, and the others independently represent H or hydroxyl substituted with a protecting group which can be removed at 90% or more at a temperature in the range from 0°C to 60°C under acidic conditions at a pH value from 2 to 4 within 24 hours; and R^{2a} represents acyl or a phosphate group represented by ~~the following~~ general formula (7):

[Chemical Formula 29]



(wherein R^{2aa} represents aryl which may be substituted or a monocyclic or bicyclic heterocyclic group which may be substituted; and R^{2ab} represents H or alkyl which may be substituted); and

(f) deprotecting all the protecting groups of the oligonucleotide compound represented by general formula (6) produced by ~~the~~ step (e).

Claim 12 (Original): The liquid-phase synthesis method for an oligonucleotide compound according to claim 11, wherein R¹ is 2-tetrahydrofuranyl or 1,3-dioxolan-2-yl.

Claim 13 (Original): The liquid-phase synthesis method for an oligonucleotide compound according to claim 11 or 12, wherein q is an integer in the range from 1 to 100.

Claim 14 (Original): The liquid-phase synthesis method for an oligonucleotide compound according to any one of claims 11 to 13, wherein q is an integer in the range from 10 to 50.

Claim 15 (Original): The liquid-phase synthesis method for an oligonucleotide compound according to any one of claims 11 to 14, wherein the levulinylating agent is levulinic acid, levulinic anhydride, a levulinate ester or a halide levulinate.

Claim 16 (Original): The liquid-phase synthesis method for an oligonucleotide compound according to any one of claims 11 to 15, wherein the phosphorylating reagent is 2-chlorophenyl phosphoroditriazolide, 2-chlorophenyl-O,O-bis(1-benzotriazolyl)phosphate or 2-chloro-4-tert-butylphenyl phosphoroditriazolide.

Claim 17 (Original): The liquid-phase synthesis method for an oligonucleotide compound according to any one of claims 11 to 16, wherein the reagent for protecting a phosphate group is 3-hydroxypropionitril or 2,2,2-trichloroethanol.